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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,291

12/12/2005

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11321-P067WOUS

3334

7590

02/04/2009

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EXAMINER

HUHN, RICHARD A

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

02/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,291	Applicant(s) TOUR ET AL.	
	Examiner RICHARD A. HUHN	Art Unit 4131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 8-22 and 28-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 23-27 is/are rejected.
- 7) ☒ Claim(s) 6 and 25 is/are objected to.
- 8) ☒ Claim(s) 1-32 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>13 July 2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-7 and 23-27, drawn to monomers.

Group II, claim(s) 8-15, 17-22, and 28-32, drawn to polymers.

Group III, claim(s) 16, drawn to a method of making monomers.

2. The inventions listed as Groups I, II, and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the common technical feature, monomers according to claim 1, are known in the art. See, for example, *Polymer* **2003**, 44(13), 3709-3714, which was published online 10 May 2003 according to this screenshot taken at the Science Direct website:

Novel flame retardant polyarylethers: synthesis and testing

Joshua L. Jurs and James M. Tour  

Departments of Chemistry and Mechanical Engineering and Materials Science and Center for
Nanoscale Science and Technology, Rice University, P.O. Box 1892, MS 222, Houston, TX 77005, USA

Received 19 December 2002; revised 14 March 2003; accepted 17 March 2003. ; Available online 10
May 2003.

3.

This document was supplied by Applicant.

4. During a telephone conversation with Tom Thrash on 15 December 2008 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-7 and 23-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-22 and 28-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
7. The following title is suggested: Flame Retardant Addition and Metathesis Polymers Derived from Bisphenol-C.

Claim Objections

8. Claim 6 is objected to because of the following informality: the polymerizable moieties 1-11 should be reproduced in the claim. See MPEP 2173.05(s).
9. Claim 25 is objected to because of the following informality: the groups from which the Y functional groups are selected are numbered nonsequentially. The numbering as currently written is: (i), (ii), (iii), (ix), (x). Please rewrite with sequential roman numerals.
10. Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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12. Claims 1-6 and 24-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claims 1-6 do not include a definition of the functional group Y^2 on either of formulas I or II, such omission rendering the claim indefinite. For examination purposes, the functional group Y^2 of claims 1-6 is treated as defined in instant claim 7.

14. Dependent claims 24-27 recite the limitation of the polymer of the respective parent claims, but parent claim 23 is a monomer and not a polymer. Claim 27 further refers to parent claim 22, but claim 22 is drawn to a method and not a polymer. For examination purposes, claims 24-27 are treated as referring to monomers, and claim 27 is treated as referring to parent claim 23.

Claim Rejections - 35 USC § 102

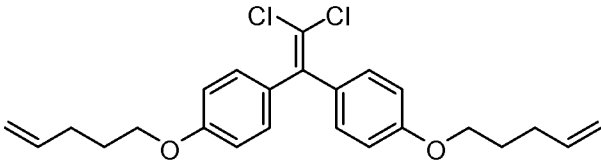
15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1, 2, 5-7, 23-25, and 27 are rejected under 35 U.S.C. 102(a) as being anticipated by *Polymer* **2003**, 44(13), 3709-3714 (herein, “Jurs”). This document was supplied by Applicant.

17. Jurs discloses the compound  (see the bottom of page 3710).

18. As to claims 1, 2, 5, and 7: This compound is instant formula I in which: X^1 and X^3 are Cl; the polymerizable unit Y^1 is an alkenyl group attached to the phenyl ring via three methylene spacer units; and the group Y^2 is OR in which R is an alkenyl group.

19. As to claim 6: The polymerizable unit of group Y^1 in this compound is instant moiety 2 (a vinyl group).

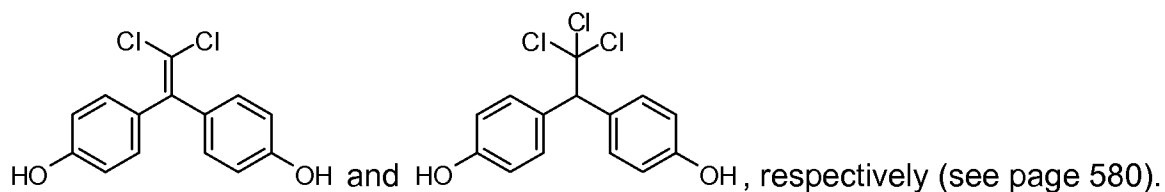
20. As to claims 23-25 and 27: This compound is instant formula V in which:

- a. X^1 and X^3 are Cl;
- b. the group Y^2 is OR in which R is an alkenyl group;
- c. Y^9 - Y^{12} are H;
- d. the polymerizable unit Y^1 is an alkenyl group; and
- e. Y^5 - Y^8 are H.

21. Claims 1, 7, 23-25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by *J. Polymer Sci.* **1980**, 18, 579-592 (herein, "Factor"). This document was supplied by Applicant.

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22. Factor discloses bisphenol-C and the hydrohalogenated compound

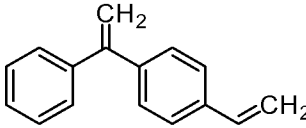


23. As to claims 1 and 7: These are instant formulas I and II, respectively, in which X^1 , X^2 , and X^3 are Cl; the polymerizable unit Y^1 is OH, and Y^2 is OH.

24. As to claims 23-25 and 27: These are instant formulas V and VI, respectively, in which:

- f. X^1 , X^2 , and X^3 are Cl;
- g. Y^2 is OH;
- h. Y^9 - Y^{12} are H;
- i. the polymerizable unit Y^1 is OH; and
- j. Y^5 - Y^8 are H.

25. Claims 1, 2, 6, 7, 23, 24, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,982,007.

26. US '007 discloses the compound  (see col 6 line 10).

27. As to claims 1, 2, and 7: This is instant formula (I) in which $X^1=X^2=H$, $Y^2=H$, and Y^1 =a polymerizable group which is an alkene.

28. As to claim 6: the polymerizable group is instant moiety 2.

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29. As to claims 23, 24, 26, and 27: This is instant formula (V) in which $X^1=X^2=H$, $Y^2=Y^5=Y^6=Y^7=Y^8=Y^9=Y^{10}=Y^{11}=Y^{12}=H$, and $Y1$ =a polymerizable group.

30. The claims recite the limitation that "not all of X^1 , X^2 , and X^3 are H". However, this leaves available the configuration that X^1 and X^2 are H, and X^3 is a halogen. In this configuration, formulas I and V will lack a halogen, as with the structure applied here. This rejection may therefore be overcome by a limitation that not both of X^1 and X^2 may be H.

Allowable Subject Matter

31. Claims 3 and 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art fails to disclose or suggest a monomer according to claim 1 with two polymerizing moieties or with a bis-alkene polymerizable group.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

k. US Patents 4,148,841 and 5,248,752 disclose alkoxyated bisphenol diacrylates in flame retardant compositions.

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- I. "Vinyl bisphenol C for flame retardant polymers", Stephenson, Jason J.; Jurs, Joshua L.; Tour, James M. In SAMPE Conference Proceedings, Long Beach, CA, May 16-20, 2004, pp. 530-534.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD A. HUHN whose telephone number is (571) 270-7345. The examiner can normally be reached on Monday to Friday, 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 4131

/R. A. H./
Examiner, Art Unit 4131